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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/579,672

09/21/2006

Norio Nakamura

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EXAMINER

BOLOTIN, DMITRIY

ART UNIT

PAPER NUMBER

2629

MAIL DATE

DELIVERY MODE

05/12/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/579,672	NAKAMURA ET AL.	
	Examiner	Art Unit	
	Dmitriy Bolotin	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 17-24 is/are rejected.
- 7) ☒ Claim(s) 15 and 16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>02/26/2007</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

It would be of great assistance to the Office if all incoming papers pertaining to a filed application carried the following items:

1. Application number (checked for accuracy, including series code and serial no.).
2. Group art unit number (copied from most recent Office communication).
3. Filing date.
4. Name of the examiner who prepared the most recent Office action.
5. Title of invention.
6. Confirmation number (See MPEP § 503).

Claim Objections

1. **Claim 7** is objected to because of the following informalities: In **claim 7**, on line 2, applicant should remove the phrase “*any one of*”. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1 – 3 and 8 – 10** are rejected under 35 U.S.C. 102(b) as being anticipated by Nagakawa (Translation of JP, 200-126459).

As to **claim 1**, Nagakawa discloses a haptic information presentation system, comprising: a haptic presentation unit having two eccentric rotators (eccentric rotors Y1 and Y2 of drawing 9); and a control unit (controller 106 of drawing 9, [0047]) that independently changes an intensity of a vibration (vibration amplitude, [0047]) by controlling a phase relation (as shown in drawing 11, [0047]) of the two eccentric rotators (eccentric rotors Y1 and Y2 of drawing 9).

As to **claim 2**, Nagakawa discloses a haptic information presentation system, comprising: a haptic presentation unit (shown in drawing 9) having two eccentric rotators (eccentric rotors Y1 and Y2 of drawing 9); and a control unit (controller 106 of drawing 9, [0047]) that independently changes an intensity of a force (vibration amplitude, [0047]) by inverting rotation directions (converse rotation, [0047]) in the two eccentric rotators (eccentric rotors Y1 and Y2 of drawing 9).

As to **claim 3**, Nagakawa discloses a haptic information presentation system, comprising: a haptic presentation unit (shown in drawing 9) having an eccentric rotator array (eccentric rotors Y1 and Y2 of drawing 9) in which multiple single eccentric rotators eccentric rotors Y1 and Y2 of drawing 9, are arranged two-dimensionally or three-dimensionally (rotators are arranged along single axis as shown in drawing 9); and a control unit (controller 106 of drawing 9, [0047]) to control a rotation state of each of the eccentric rotators included in the haptic presentation unit [0047].

As to **claim 8**, Nagakawa discloses a haptic information presentation method, wherein when a haptic presentation unit having two eccentric rotators (eccentric rotors

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Y1 and Y2 of drawing 9) is controlled (using controller 106 of drawing 9, [0047]), a frequency and an intensity of a vibration and/or a vibration sensation [0047] are independently changed by controlling rotation directions, a phase relation and rotation speeds [0047] in the two eccentric rotators (eccentric rotors Y1 and Y2 of drawing 9).

As to **claim 9**, Nagakawa discloses a haptic information presentation method, wherein when a haptic presentation unit (shown in drawing 9) having two eccentric rotators (eccentric rotors Y1 and Y2 of drawing 9) is controlled (using controller 106 of drawing 9, [0047]), a frequency and an intensity of a force and/or a force sensation are independently changed [0047] by inverting rotation directions (converse rotation, [0047]) in the two eccentric rotators (eccentric rotors Y1 and Y2 of drawing 9).

As to **claim 10**, Nagakawa discloses a haptic information presentation method, wherein when a control is made on a haptic presentation unit (using controller 106 of drawing 9, [0047]) having an eccentric rotator array (eccentric rotors Y1 and Y2 of drawing 9) in which plural single eccentric rotators (rotors Y1 and Y2 of drawing 9) are arranged two-dimensionally or three-dimensionally (rotators are arranged along single axis as shown in drawing 9), a rotation state of each of the eccentric rotators included in the haptic presentation unit is individually controlled [0047].

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 4, 5, 11 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagakawa in view of Tremblay et al. (US 6,275,213).

As to **claim 4** (dependent on 3), **claim 5** (dependent on 4), **claim 11** (dependent on 10) and **claim 12** (dependent on 11), Nagakawa discloses the haptic information presentation system and the method, heaving the eccentric rotator array (eccentric rotors Y1 and Y2 of drawing 9), and the control unit (controller 106 of drawing 9, [0047]) causes the presentation of one or more of a vibration changing spatially and temporally, a vibration sensation, a torque, a torque sensation, a force or a force sensation [0047].

Nagakawa fails to disclose presentation system, wherein the eccentric rotator array is adapted to form a skin-shaped eccentric rotator array and wherein setting the

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control mode of the skin-shaped eccentric rotator array causes the presentation of a vibration; a feeling in which a material rolls on a palm or a finger or another presentation object, a feeling in which a force, a vibration or a torque passes through a palm or a finger or another presentation object, and a texture of a surface of a virtual object.

In the same field of endeavor, Tremblay discloses a presentation system (tactile feedback man machine interface, TITLE) is adopted to form a skin-shaped eccentric rotator array (Shown in fig. 18A) and wherein setting the control mode of the skin-shaped eccentric rotator array causes the presentation of a vibration (col. 13, lines 5-40); a feeling in which a material rolls on a palm or a finger or another presentation object, a feeling in which a force, a vibration or a torque passes through a palm or a finger or another presentation object, and a texture of a surface of a virtual object (col. 1, lines 15 – 40).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system and the method of Nagakawa, by providing a skin-shaped array, so that to provide a man-machine interface for interactive computer applications (Tremblay, col. 1, line 65 – col. 2, line 5).

7. **Claims 6, 7 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagakawa in view of Fukui et al. (WO, 02-073385).

As to **claim 6** and **claim 13**. Nagakawa discloses a haptic information presentation system and a method, comprising: a haptic presentation unit having plural

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rotators (eccentric rotors Y1 and Y2 of drawing 9); and a control unit (controller 106 of drawing 9, [0047]) to control a temporal change of a resultant angular momentum vector of the haptic presentation unit [0047].

Nagakawa fails to disclose the system and the method, wherein the rotors are arranged three-dimensionally and the control unit causes the generation of a torque with a fixed value by abruptly changing the resultant angular momentum vector in a vicinity of zero, and controls a precession torque to be a specified value or less.

In the same field of endeavor, Fukui discloses the system and the method, wherein the rotors are arranged three-dimensionally (as shown in drawing 13) and the control unit causes the generation of a torque with a fixed value by abruptly changing the resultant angular momentum vector in a vicinity of zero, and controls a precession torque to be a specified value or less (the apparatus is disclosed in drawings 11 and 12 and Abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system and the method of Nagakawa by providing an ability of creating a sensation of constant torque, so as to be able to present a presents of virtual object (Fukui, Abstract).

As to **claim 7** (dependent on 6), Nagakawa in view of Fukui discloses the haptic information presentation system, but does not disclose that the haptic presentation unit has a shape mountable on a portable communication equipment or a mobile electronic equipment.

However, it would have been an obvious choice of design to one of ordinary skill in the art at the time of the invention to modify the shape of the device of Nagakawa as modified by Fukui based on the needs of a particular application, since such modification would require only a routine skill in the art (see Graham vs. John Deere Co., 383 U.S. 1, 148 USPQ 459.)

8. **Claims 14 and 22 – 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagakawa in view of Hirai (JP, 2003-251277).

As to **claim 14** (dependent on 2) and **claim 24** (dependent on 1), Nagakawa discloses the haptic information presentation system, wherein the haptic presentation unit includes a rotation unit (motor M of drawing 9) to rotate the eccentric rotator (eccentric rotors Y1 and Y2 of drawing 9), the control unit (controller 106 of drawing 9) controls a rotation state of the rotation unit included in the haptic presentation unit [0047].

Nagakawa fails to disclose the rotation unit rotates together with the eccentric rotator to be rotated.

In the same field of endeavor, Hirai discloses the rotation unit rotates together with the eccentric rotator to be rotated (fixed shaft vibration motor, Title).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Nagakawa by arranging a motor and an

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eccentric rotator in the same unit, since this will suppress a rotation leakage flux (Hirai, Abstract).

As to **claim 22** (dependent on 14), Nagakawa discloses a haptic presentation device of a haptic information presentation system, comprising a function of a haptic presentation unit of a haptic information presentation system (compact vibration generating device for a game device, Abstract).

As to **claim 23** (dependent on 14), Nagakawa discloses a control device (controller 106 of drawing 9) of a haptic information presentation system (shown in drawing 9), comprising a function of a control unit of a haptic information presentation system [0047].

9. **Claims 17 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagakawa in view of Hirai and Buttafoco (US 7,079,995).

As to **claim 17** (dependent on 14) and **claim 18** (dependent on 17), Nagakawa discloses the haptic information presentation system, wherein the control unit (controller 106 of drawing 9) controls a rotation state of each of the eccentric rotators included in the haptic presentation unit (eccentric rotors Y1 and Y2 of drawing 9) in accordance with the external information inputted from the input unit [0047].

Nagakawa in view of Hirai is silent about the haptic information presentation system, further comprising an input unit to input external information to the control unit and the haptic presentation unit itself is the haptic information presentation system.

In the same field endeavor, Buttafoco discloses the haptic information presentation system (wireless bar 12W of fig. 5), further comprising an input unit (infrared receiver 72 of fig. 7) to input external information (simulation control signal, col. 5, lines 43 – 45) to the control unit (logic unit 70 of fig. 7) and the haptic presentation unit itself is the haptic information presentation system (wireless bar 12W of fig. 5 comprising components shown in fig. 7 is self contained, col. 5, line 66 – col. 6, line 17).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Nagakawa in view of Hirai by providing an input unit for external information, so as to provide a viewer with enhanced sense of realism (Buttafoco, col. 1, lines 35 – 40).

10. **Claim 19** is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagakawa in view of Hirai and Matsuda (JP, 2000-148393).

As to **claim 19** (dependent on 14), Nagakawa in view of Hirai fails to disclose the haptic information presentation system, wherein piezoelectric elements are used instead of the eccentric rotators, and the control unit controls a voltage of each of the piezoelectric elements included in the haptic presentation unit.

In the same field of endeavor, Matsuda a haptic information presentation system, wherein piezoelectric elements are used instead of the eccentric rotators and the control unit controls a voltage of each of the piezoelectric elements included in the haptic presentation unit (Abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Nagakawa in view of Hirai by using piezoelectric elements instead of the eccentric rotators, in order to provide an alternative means for presenting haptic sensation.

11. **Claim 20** is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagakawa in view of Hirai and Shinoda (JP, 11-150794).

As to **claim 20** (dependent on 14), Nagakawa in view of Hirai discloses the haptic information presentation system, but fails to disclose the haptic system, wherein magnets are used instead of the eccentric rotators, and the control unit controls a voltage of each of the magnets included in the haptic presentation unit.

In the same field of endeavor, Shinoda discloses a haptic information presentation system, wherein magnets are used instead of the eccentric rotators, and the control unit controls a voltage of each of the magnets included in the haptic presentation unit (Abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Nagakawa in view of Hirai by using magnets instead of the eccentric rotators, in order to provide an alternative means for presenting haptic sensation.

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12. **Claim 21** is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagakawa in view of Hirai and Chowa (JP, 09-221753).

As to **claim 21** (dependent on 14), Nagakawa in view of Hirai fails to disclose the haptic information presentation system, wherein material particles of the two eccentric rotators rotate around a same rotation axis on a same plane.

In the same field of endeavor, Chowa discloses a haptic information presentation system, wherein material particles of the two eccentric rotators rotate around a same rotation axis on a same plane (Abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Nagakawa in view of Hirai by the eccentric rotators around same axis on the same plane, because this will improve the technique by which exciting force is varied (Chowa, Abstract).

Allowable Subject Matter

13. **Claims 15 and 16** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The following is a statement of reasons for the indication of allowable subject matter:

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Nagakawa in view of Hirai fails to disclose “*the haptic information presentation system, wherein the haptic presentation unit includes a fin rotated together with the eccentric rotator and a fluid surrounding the fin*”.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dmitriy Bolotin whose telephone number is (571)270-5873. The examiner can normally be reached on Monday-Friday, 8:00 AM - 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on (571)272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/D. B./

Examiner, Art Unit 2629

/Amare Mengistu/

Supervisory Patent Examiner, Art Unit 2629